METRICS PLANNING AND REPORTING
FIRST YEAR PROGRESS REPORT

FY2004
(JANUARY 8, 2004 – SEPTEMBER 30, 2004)

INTRODUCTION

This Progress Report summarizes the work performed by the Metrics Planning and Reporting Working Group (MPARWG) of the Earth Science Data System Working Group (ESDSWG), from January 8, 2004 (the Orlando meeting) to September 30, 2004. The report reflects the WG's work in defining a metrics collection and reporting program for NASA's evolving science ground data system enterprise, with an initial emphasis on REASoN projects.

FY2004 MPAR Working Group members are listed in Attachment A; a one-page summary of the Working Group's progress during the reporting period is presented in Attachment B.

WORKING GROUP ORGANIZATION

The MPARWG was organized at the Orlando Meeting on January 8, 2004. The WG was chaired by H. K. Ramapriyan, NASA/GSFC. WG minutes of that meeting are included in Attachment D – FY2004 MPARWG Minutes. After a review and comment period, the WG approved a charter, rules of operation, a co-chair (Paul Davis, University of Maryland), an FY2004 work plan, and the concept of focused subgroups. The WG's Web site, part of the ESDSWG Web site, became operational on January 29 and contains all pertinent documentation. The Working Group established 2 subgroups to focus on specific metrics issues. Chris Kummerow chaired the Unique Methods of Measuring Metrics Subgroup and Glen Schuster chaired the Education Subgroup.

METRICS DEFINITION

The MPARWG reviewed and endorsed a baseline set of ten REASoN program-level metrics that are included in Attachment C – MPARWG Recommendation #1. The baseline set of metrics were implemented in the WG-endorsed UMD Metrics Tool (see below). The WG is routinely reviewing and evaluating the metrics for their usefulness in providing a clear picture of REASoN performance and success stories.

METRICS COLLECTION TOOL

The MPARWG reviewed the University of Maryland's metrics collection tool (test version) and provided comments and recommendations to Rama and Paul Davis. The comments and recommendations were classified as either Phase 1 or Phase 2, depending on immediacy of action necessary to get the metrics tool up and running. The WG comments were included in Recommendation #1 (Attachment C).

After a review and comment period, the WG approved Recommendation #1 (Attachment C), a request to NASA HQ for approval to implement the University of Maryland Performance Metrics Tool for the purpose of collecting and reporting data and services metrics provided by REASoN Projects. The recommendation was entered in the MPARWG Web page along with a pointer to the Metrics Tool inviting interested users to test drive the tool. The WG sent Recommendation #1 to NASA HQ on April 12 and it was approved on July 13. The Metrics Tool is now operational and is currently collecting data from six REASoN sites. A major objective for FY2005 is to increase REASoN awardee participation in metrics collection.

MPARWG MEETING AND TELECONS

The WG met initially at the ESDSWG Kick-Off meeting in Orlando, FL, January 8, 2004. The WG had four telecons: March 29, May 10, July 20, and September 28, and the minutes of each and the Orlando Meeting are in Attachments D.

FUTURE PLANS

The WG will continue to promote the use of the Metrics Tool; evaluate the tool's performance; and recommend improvements to the tool, its collection procedures, and metrics definitions. The WG is open to user comments and suggestions for improving the metrics collection process. The WG will develop an FY2005 Work Plan at the October 19 Greenbelt Meeting that will address these issues and any unfinished items from the FY2004 Work Plan.

ATTACHMENTS

There are 4 attachments to this progress report:

Attachment A – MPARWG Membership
Attachment B – MPARWG Status Summary for FY2004
Attachment C – MPARWG Recommendation #1 to NASA HQ
Attachment D – MPARWG Orlando Meeting and Telecon Minutes

ATTACHMENT A

MPAR WG Membership, October 1, 2004

Name	Location	Email
Steve Adamson	CSC	
Jeanne Behnke	NASA	
Wesley Berg	Colorado State Univ.	
Bud Booth	SGT	
Amy Budge	EDAC-UNM	
Ken Casey	NOAA NODC	
Paul Davis	Univ. of Maryland	
Kathy Fontaine	NASA GSFC	
Michael Goodman	NASA MSFC	
Vanessa Griffin	NASA GSFC	
Danielle Gwinn	TRFIC/MSU	
Susan Heinz	JPL PODAAC/RITSS	
Paul Hemenway	URI	
Greg Hunolt	SGT	
John Jensen	Univ. of South Carolina	
Christian Kummerow	Colorado St. Univ.	
Frank Lindsay	NASA HQ	
Carol Meyer	ESIP Federation	
Bernard Minster	Scripps	
John Pickle	Museum of Science, Boston	
H. K. Ramapriyan	NASA GSFC	
Rob Raskin	JPL	
Nazmi Saleous	Raytheon/NASA GSFC	
Glen Schuster	US Satellite Laboratory	
Tom Stanley	NASA SSC	
Bill Teng	NASA GSFC DAAC	
Larry Voorhees	ORNL	
Fred Watson	Calif St Univ Monterey Bay	
Ron Weaver	NSIDC-Univ. of Co	
Dick Wertz	Earth Science Foundation	
Victor Zlotnicki	JPL	

Attachment B

MPARWG Status Summary for FY2004

1. Meetings

MPARWG Kick-off, Orlando, Fl	January 8, 2004
Telecon #1	March 29
Telecon #2 (NSDL focus)	May 10
Telecon #3	July 20
Telecon #4	September 28

2. WG Products (* indicates available on MPARWG Web site)

WG Charter*	January 8, 2004
WG Rules of Operation*	"
WG Chairs*	"
2004 Work Plan*	"
Web site operational	January 29
Initial set of Program Metrics, w/Purpose Statements*	May 13
Subgroups organized for Research, Education, and Unique Methods of Measuring Metrics	April 12
Evaluated and provided Phase 1 and 2 recommendations on UMD Prototype Metrics Collection Tool*	Feb 26 - April 12
Decision memo to HQ on recommendation for tool to Collect metrics from REASoN Projects*	April 12
HQ approval on UMD tool	July 13

3. MPARWG First Year Work Plan: January – September 30, 2004.

Adopt charter, elect co-chair, adopt rules of operation (COMPLETED)
Review draft Program Metrics, prepare recommendation(s) for NASA HQ (COMPLETED)
Review collection tools, make recommendations (COMPLETED)
Secure HQ approval of metrics/tool baseline (COMPLETED)
Complete implementation of collection tool(s) by June 2004 (COMPLETED)
Monitor initial metrics collection, assess effectiveness of collection and reporting process, and assess quality of the collected metrics.
Adopt an annual cycle for review of the metrics baseline that meets HQ/ESE requirements.
Provide first year progress report; FY05 work plan

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Attachment C
MPARWG Recommendation #1 to NASA HQ

TO: Martha Maiden/Code YF/NASA HQ April 12, 2004
FROM: H. K. Ramapriyan and Paul Davis/Co-Chairs, Earth Science Metrics Planning and Reporting Working Group (MPARWG)
SUBJECT: Recommendations of the MPARWG regarding metrics and a tool to collect metrics from the REASoN Projects

The purpose of this decision memorandum is to request your approval to implement the University of Maryland Performance Metrics Tool (UMDPMT) for the purpose of collecting and reporting data and services metrics provided by the REASoN Projects. The Metrics Planning and Reporting Working Group (MPARWG) developed the recommendations presented here through discussions at the Kick-Off meeting in Orlando on January 8, 2004, a month-long evaluation of a prototype of the UMDPMT, and a WG telecon on March 29, 2004. Presented below is a summary of two major actions we intend to implement once we receive approval to proceed.

- The metrics to be collected will be those listed in Attachment A. These are unchanged from the baseline metrics approved by HQ for the REASoN Projects.

- The UMDPMT is currently being prototyped and evaluated at http://glcf.umiacs.umd.edu/reason_metrics/. If you would like to experiment with the tool, you could sign in as a "test" user (pick project 0 from the pick list) with password "test". The MPARWG has evaluated the Web-based tool and has made a set of recommendations to improve the tool. The recommendations were discussed at the March 29 telecon and are summarized in Attachment B. The recommendations fall into implementation during either Phase 1 or 2. The Phase 1 items are considered necessary for the tool to be implemented by the WG's goal of July 1, 2004. Phase 2 items will be considered for future discussion and/or implementation. All Phase 1 items are currently being reviewed and considered for implementation. The MPAR WG recommends that, with the necessary Phase 1 modifications, the UMD Metrics Tool be implemented.

- Until the Phase 1 changes to the UMDPMT are completed, the REASoN Projects that have officially started will be asked to provide their monthly reports using the prototype version of the tool.

Finally, we request that as REASoN Projects are officially started, we receive notification by email (rama.ramapriyan@nasa.gov) by the respective projects' Study Managers.

We look forward to your decision on this recommendation so that we may implement and start using the metrics tool by July 1.

Regards,
Rama and Paul.

ATTACHMENT C -RECOMMENDATION # 1 (Continued)

(Attachment A to Recommendation #1)

PROJECT PERFORMANCE METRICS (DRAFT)

REASoN projects are required to collect and report on the metrics noted in Table A. These data will be reported from the projects on a monthly basis with six month and yearly aggregations of data to coincide with interim reporting obligations. The metric data provided by the REASoN projects, once aggregated, will be made available for public inspection. In addition to the specific metrics listed here, REASoNs are expected to help aid in the development of new metrics through the Metrics Planning and Reporting Working Group and may need to provide additional data beyond those in Table A.

TABLE A: Metrics to be reported by the REASoN project.

	Metric	Definition and Implementation
1	Number of Distinct Users	The number of distinct individual users (based on non-duplicated IP addresses) who request and/or receive products, services and/or other information during the reporting period.
2	Characterization of Distinct Users Requesting Products and Information (by Internet domain)	Classes of users who obtain products and services from the project. The metric will show the relative proportion of users accessing data and services from a) first-tier domains: .com, .edu, .gov, .net, .mil, .org, summary of foreign countries, and unresolved , and b) second-tier domains, such as “nasa.gov”, “unm.edu”, etc.
3	Number of Products Delivered to Users	The number of separately cataloged and ordered data or information products delivered to users during the reporting period (by project-defined product ID). A ‘product’ may consist of a number of items or files that comprise a single item in a product catalog or inventory; our intent is to capture the user view of the products provided by the project (e.g., Suppose a Vegetation Index map is a type of product that is generated and kept track of in the inventory on a regional and monthly basis. Then, if 30 users receive a Vegetation Index map of the Eastern U.S. for September 2001 count them as 30 products delivered).

4	Number of Distinct Product Types Produced and Maintained by Project	A product type refers to a collection of 'products' of the same type such as "sea surface temperature" products. The project may add many or few product types through time but these should be tracked independent of the number of 'products' delivered. (This metric is not expected to change frequently and may not require updates on a monthly basis).
5	Volume of Data Distributed	The volume of data and/or data products distributed to users during the reporting period (in GB or TB as appropriate).
6	Total Volume of Data Available for Research and Other Uses	The total cumulative volume, as of the end of the reporting period, of data and products held by the project and available to researchers and other users (GB or TB). This number can include data that is not on-line but is available through other means.

	Metric	Definition and Implementation
7	Delivery Time of Products to Users	Response time for filling user requests during the reporting period. Averaged and standard deviation summary times are to be collected for both electronic (including subscription services) and physical hard media transfers.
8	Support for the ESE Science Focus Areas *(when applicable)*	The REASoN projects will include a quantitative summary of the data products supporting one or more of NASA's science focus areas, and report any changes at the next monthly metrics submission. The focus areas are: weather, climate change and variability, atmospheric composition, water and energy cycle, Earth surface and interior, and carbon cycle and ecosystems.
9	Support for the ESE Applications of National Importance *(when applicable)*	The REASoN projects will include a quantitative summary of the data products supporting one or more of NASA's Applications, , and report any changes at the next monthly metrics submission.. The 12 applications areas are: agricultural efficiency, air quality, aviation safety, carbon management, coastal management, ecosystems, disaster preparedness, energy forecasting, homeland security, invasive species, public health, and water management.

10	Support for ESE Education Initiatives *(when applicable)*	In partnership with the Study Manager the REASoN project will submit data pertaining to the adoption and use of educational products by noted audience categories (to be determined by project and study manager). These groups can include higher education, K-12, museums, informal education, and others as appropriate.

Project Product Mapping

To establish a baseline for the assessment of products and their support of NASA's science and applications' goals all REASoN projects will prepare an initial list of the current and pending products to be made available. The Studies Manager will work with the REASoN project to map these products and services to one or more of the six Science Focus Areas and/or the twelve Applications of National Importance and Education. Monthly reporting of Metric #3 will map the products distributed by the project to the pertinent focus area , application or education user category.

How To Submit Metric Data

The REASoN projects will provide the metric information described above using a NASA designated Internet portal. This on-line tool will allow REASoN project representatives to enter the requested data into a web form and data base that stores this information for later viewing and retrieval. These data must be entered from 7-10 days following the end of the month. The location of the REASoN metric web portal will be provided to each REASoN project by a NASA representative. Only designated NASA representatives will have access to individual project metric data. If technical issues develop where project metric data cannot be added using the web tool, you will be asked to submit this information via email to a NASA representative or studies manager.

ATTACHMENT C - RECOMMENDATION # 1 (Continued)

(Attachment B to Recommendation #1)

Minutes of MPAR WG March 29, 2004, telecon.

18 members dialed in.

Comments, recommendations and actions were classified as either Phase 1 or 2. Phase 1 being more immediate actions necessary to get the metrics collection tool up and running; Phase 2 are items considered for future discussion and/or implementation.

Phase 1 Items.

1. Metric #2. The WG asked about the availability of scripts that could automatically parse domain names. Steve Adamson will provide WG members with an algorithm that can parse second-level domain names.

2. Privacy Act Concerns. The WG needs a reading on how the metrics collection process is affected by Privacy Act / Paperwork Reduction Act regulations, for both the centralized metrics tool and the collection process at each of the REASoN data / service providers. Vanessa suggested that we could use the statement that the DAACs use and replicate it at the REASoN sites in order to inform users of how their information will be used for metrics.

3. Reporting Frequency. The WG decided on a monthly cycle.

4. When to Start Reporting. Reporting by each activity would start the month after its negotiations are finalized. This has to be coordinated with NASA study leads.

5. Important NASA Collection Dates: Typically end-of-fiscal-year, September / October, for annual fiscal summaries required by ESE (NASA HQ).

6. Metric #2: Questions were raised about the completeness of 2nd-level domain names. Paul will review (possibly examine EDGRS) request and add new names to the list.

7. Metrics #8, 9, 10: Lots of questions about the form these questions are in. Paul agreed to review structure of these questions and revise accordingly, i.e., have separate entry boxes for categories and values, or relate Metrics #3 – 4, for example, to Metrics #8 – 10.

8. Metric #8: De-activate the pointer to a voluminous document. Paul will revise web form to give user the size of the document and an option to save for later viewing.

9. Metrics #8, 9, 10: WG asked a question concerning the validity of reporting on multiple categories within 8, 9, or 10 for a single product. The answer is yes! It would not be unusual for a product to support more than one area.

10. Metrics #8, 9, 10: The WG accepted a recommendation to add an "Other – please explain" category to each question.

11. Report Replication: The WG decided that having the capability to automatically replicate last month's report for use in a current month was not a good idea. Having side-by-side columns could help with manual data entry, i.e., last month's entries next to the current month. Paul will examine to see if this is feasible for Phase 1.

12. Error Correction: The WG asked how do you correct errors in a previous submission? The WG decided: 1) Not to leave the web form 'open' for ad hoc corrections to all months; you can view data but the data can not be overwritten, and 2) the Web form would leave the previous month's collection open after which any corrections should be emailed to Paul. A concern was raised by Paul about the number of emails he may receive under this scenario.

13. Reporting Deadlines: Two dates were discussed, but no final decision made: 10th or 15th of the month, e.g., March's data would be due by April 10, or 15.

14. Metrics #7: A concern was raised about combining electronic distribution and non-electronic distribution, e.g., mail, into a single metric. It was recommended that the 2 distribution modes be collected separately. Paul will look into this.

15. New Activity: Mike Goodman asked that his REASoN project – DISCOVER – be added to the web form. Paul will add to the project list on the front of the Web tool.

Phase 2 Items

1. Manual vs. Automatic Data Entry: This was recommended for Phase 2 discussion.

2. Media Distribution: A question was raised about how we should characterize metrics for mass production and distribution of media (e.g., CD-ROMs).

3. Specification Control: Frank Lindsay recommended that the WG develop the necessary documentation – Interface Requirements Document (IRD) and Interface Control Document (ICD) – to formalize and control the tool's requirements and interface specifications, especially if the WG moves into automated data entry. This was acknowledged by the WG as necessary and will be addressed in the future.

4. Visual Graphics: The comment was about visual graphics at either the entry form or as a product of the tools' database. It was agreed that this will be discussed as a future item.

5. Revised Data Level Definitions: Chris Kummerow proposed adding new data / product levels to the current Level 0 – 3 standard definition set. The new levels would help in measuring higher level products that typically are value added and are at reduced volumes. Chris' proposal was distributed to the WG for further discussion.

Summary

1. Consensus of the WG was that with the proper fixes mentioned above the University of Maryland metrics collection tool is a very good start and should be implemented.

2. Rama discussed several short turnaround events: 1) Comments on minutes due by c.o.b Friday April 2, 2) Draft recommendations, decide what gets implemented in Phase 1, and send a decision memo to NASA Hq within 10 days.

Attachment D

MPARWG Orlando Meeting and Telecon Minutes

Agenda: MPAR Telecon, 9/28/04, 1-2pm, 17 members on-line at beginning of call

The telecon focused on the upcoming 2nd ESDSWG Joint Working Group Meeting that will be held at Greenbelt, MD, on October 18 and 19. Most of the discussion was centered around the demo and breakout session agenda items selected from below.

1. Workshop - October 18-19

- Registration status for workshop
- Agenda includes interesting invited speakers and a little over 3 hours for breakout
- A presentation on current status of MPARWG is called for - 20 minute talk - I will present

2. Workshop presentation outline

- MPARWG purpose
- Status w.r.t. FY 04 plans discussed in Orlando workshop
- Subgroups and their status
- Sample of UMD metrics tool home page - intro to demo that will be set up for attendees to play with
- Introduction to topics to be covered in breakout sessions.
    - Leftover items from FY 04 plan
        - Monitor initial metrics collection, assess effectiveness of collection and reporting process, and assess quality of collected metrics.
        - Adopt an annual cycle for review of the metrics baseline that meets HQ requirements.
    - Plans for FY 05
        - Phase 1 items from metrics collection tool assessment to be completed
        - Phase 2 items - plans for implementation
        - Subgroup recommendations and their implementation
    - Metrics collection status and issues
        - Reports are not coming in regularly - only 4 are reporting - what are the causes? how can we help?
        - New ways to publish metrics information and success stories
    - Membership - adequate representation? Need anyone else to join?

3. Phase 2 items: [Also to be discussed at the Workshop Breakout session]

- Manual vs. Automatic Data Entry
- Media Distribution: A question was raised about how we should characterize metrics for mass production and distribution of media (e.g., CD-ROMs).
- Specification Control: Frank Lindsay recommended that the WG develop the necessary documentation - IRD and ICD.

- Visual Graphics: The comment was about visual graphics at either the entry form or as a product of the tools' database. It was agreed that this will be discussed as a future item.
- Revised Data Level Definitions: Chris Kummerow proposed adding new data / product levels to the current Level 0 - 3 standard definition set.

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Minutes of the

MPARWG Telecon, July 20, 2004

Number of Participants: 11 (Rama, Adamson, Booth, Davis, Fontaine, Gwinn, Hunolt, Kummerow, Schuster, Voorhees, and Weaver).

1. Paul Davis discussed his draft presentation on the University of Maryland's REASoN Metrics Collection Tool. Paul will give the presentation on behalf of the MPARWG at the 13th ESIP Federation Assembly Meeting on August 18 at Asheville, NC. Rama also noted that the tool was approved for implementation by NASA HQ on July 13. Rama suggested that Paul include the latest Metrics Definition Table that contains a purpose statement for each metric, and to look at the information contained in the working group's status to date summary.

2. Rama discussed the upcoming NSF NSDL Web metrics workshop at Palo Alto on August 2 – 3. The MPARWG was made aware of the workshop through the May 10 telecon with NSDL. Rama will look for someone who can participate in the workshop.

3. Unique Methods of Measuring Metric Subgroup Status: Chris Kummerow, subgroup chair, gave a status report. Chris pointed out that data systems are evolving because science is evolving. His subgroup's focus is not on collecting data volume metrics solely, but it is looking at a set of 3 metric areas they feel are important to future scientists who are developing value-added products from multiple sensors and data streams. The 3 metric areas are centralized statistical generation, progress measurement, and user satisfaction.

> The subgroup feels that a centralized statistical generation office would provide the best organization for collecting and processing metrics information into final form for any number of users.
>
> The subgroup will examine a set of metrics to measure the progress of an ideal science data system. There was some discussion as to what exactly is an ideal system. Chris said such a system would be impossible to attain, however once defined it could be a yardstick for measuring the evolution (i.e., progress or regress) of science data systems.
>
> User satisfaction would be measured by follow up discussions with a set of selected users. Rama suggested that the subgroup look at the recent American Customer Satisfaction Index Survey for possible useful information.

The subgroup will continue to develop their ideas on the above 3 unique metric areas and provide periodic status reports.

4. Education Subgroup Status: Glen Schuster, subgroup chair, gave the subgroup status. Glen discussed his subgroup's focus on qualitative, rather than quantitative, metrics. For educational metrics collection, he feels that qualitative metrics are more useful, and he plans to develop a set of questions that he will share with the MPARWG.

5. Rama noted the upcoming 2nd Joint NASA Earth Science Data System Working Group meeting on October 18 – 19, at Greenbelt. Rama asked for suggestions for guest speakers and one promising suggestion was someone from NSDL.

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Minutes of MPAR WG May 10, 2004, telecon.

15 members dialed in.

The telecon was dedicated to a discussion of the NSDL (National Science Digital Library) led by invited guests Anita Coleman and Laura Bartolo from NSDL.

The NSDL (http://www.nsdl.org/) is funded through NSF, and includes 150 individual projects located in 33 states. The NSDL is essentially a federation of projects ranging over all areas of science with a focus on integration of education and science. All levels of education and all levels of users are addressed. The projects involve scientists, IS, CS, and experts in education and instructional technology. Projects are considered for inclusion in NSDL if their 'collections' meet broad relevancy and basic integrity criteria. Overarching way the projects relate is via standard compliant metadata held within individual projects. The various projects are described in http://www.nsdl.org/about/projects/ . It was noted that CIESIN is an NSDL project.

Requirements for collecting user information, e.g., registration data, are left to the individual projects.

Digital Library for Earth Science Education (DLESE - http://www.dlese.org/dds/index.jsp) is one of the NSDL projects. The projects' staff size can range from under 10 people to very large groups. Project scope, numbers of staff and outreach vary. There was a lot of funding for collections.

NSDL governance is through standing committees; Anita and Laura chair the Educational Impact and Evaluation Standing Committee (EIESC). There are also community services, technology, policy, content and sustainability standing committees.

The EIESC has been active since 2001. Its objective is to determine educational impacts and how NSDL can contribute. The EIESC is working on developing standard terms and definitions for the metadata describing the projects. The EIESC is also studying projects' weblogs to see what kind of data they are collecting and reporting, etc. The EIESC and the Technology standing committee are collaborating on a web metrics workshop to be held in August 2004 in conjunction with MERLOW (?) annual conference.

The EIESC held a workshop on educational impact in October 2003. The workshop emphasized metrics but also considered case studies and qualitative information that can supplement metrics.

More information about the EISC is available at: http://eduimpact.comm.nsdl.org/

Some NSDL projects focus on building collections and others on building tools. EIESC's focus so far has been on things like access to journal collections, etc. There are projects that point people to places. Some projects are looking at usability of information. No one

has looked at structured data (e.g. datasets that are FGDC compliant).

EIESC is sponsoring workshop on scientific mark-up languages and OGC (Open GIS Consortium) is participating. ESML (Earth Science Markup Language) is represented. Two ESIP representatives, Dick Wertz and Rob Franklin, are going to this meeting.

EIESC is "a little bit away from" collecting information from citation databases, but they are interested in incorporating citation information. Citation indexes do not give enough information about datasets and tools. The biggest concern is that we can't get citations of datasets and learning materials – it is not known if there is a solution for this.

EIESC is conducting a web metrics pilot project with six NSDL projects to determine how difficult it is to collect standard metadata (metrics) common to the projects. The metadata will describe what information the projects are collecting and what publications result from the projects. The six project pilot study is to be expanded. DCDOT is the only metrics collection tool known to EIESC. NSDL sited this project and its preliminary report (see below) as the most useful NSDL document for MPARWG purposes.

The six projects are; NSDL Communications Portal, DLESE, ESIP, iLumina, Math Forum and SMETE. The study was a survey that attempted to answer 2 questions: 1) How are people using the libraries? and 2) How are collections growing/changing? The survey collected data on 22 questions (metrics) over a 3 month period and the results are reported in "NSDL Evaluation Pilot, Preliminary Report of Collections Data & Users and Usage Data." The report defines each metric, the number of sites reporting data, a summary of aggregate data, and notes about data anomalies. Web metrics were used exclusively in Question 1. The report can be found in http://eduimpact.comm.nsdl.org/events/?pager=84 under 2002 Pilot Evaluation, September 18 2002. Preliminary Usage & Collections Results - metrics (casey)

EIESC uses a number of different ways for clustering the projects - domains, user groups, geographic. The *best formulated group within NSDL is Earth Sciences*. If EIESC had to standardize to a particular group it would be Earth Sciences. Once standards are laid down there is help available.

Impact metrics were discussed. For the scientific research community the challenge is to measure impacts of datasets - when does a dataset appear in a scientific publication? How many web site references to a dataset are there? Applications impacts are important as well, e.g. fire detection. (NASA has the same issue with MODIS fire products – difficult to determine specifically how much MODIS products have helped versus other sensor data.) Many impacts are reported anecdotally, such as ESIP Federation nuggets.

Measuring impact is a major concern for EIESC and was a major agenda item at the 2003 NSDL Workshop where it was reported in "Developing a Strategy for Evaluating the Educational Impact of NSDL."

The workshop report on educational impact describes some of the ways in which NSDL is trying to evaluate how learning resulted from the use of library. It is difficult to identify

that any particular learning happened only due to the use of the library. For impact metrics libraries do counts of accesses, people coming in, usability evaluation, usage logs, focus groups for collecting information, etc. There is also a digital library evaluation guide in the workshop - this lists a number of methods for understanding impact. Focus groups are very good for getting information on barriers to use of data, what can be done better, etc. Surveys are problematic. Libraries hope to improve their impact metrics.

Summary of telecon.

- NSDL provided an informative discussion on topics that are of concern to the MPARWG. Many of our issues and concerns overlap.

- MPARWG members are encouraged to review the NSDL metrics collection evaluation pilot report.

- NSDL invited MPARWG members to future NSDL Workshops.

- MPARWG should attend August workshop on web metrics held in conjunction with MERLOW (?) conference.

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Minutes of MPAR WG March 29, 2004, telecon.

18 members dialed in.

Comments, recommendations and actions were classified as either Phase 1 or 2. Phase 1 being more immediate actions necessary to get the metrics collection tool up and running; Phase 2 are items considered for future discussion and/or implementation.

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10. Metrics #8, 9, 10: The WG accepted a recommendation to add an "Other – please explain" category to each question.

11. Report Replication: The WG decided that having the capability to automatically replicate last month's report for use in a current month was not a good idea. Having side-by-side columns could help with manual data entry, i.e., last month's entries next to the current month. Paul will examine to see if this is feasible for Phase 1.

12. Error Correction: The WG asked how do you correct errors in a previous submission? The WG decided: 1) Not to leave the web form 'open' for ad hoc corrections to all months; you can view data but the data can not be overwritten, and 2) the Web form would leave the previous month's collection open after which any corrections should be emailed to Paul. A concern was raised by Paul about the number of emails he may receive under this scenario.

13. Reporting Deadlines: Two dates were discussed, but no final decision made: 10th or 15th of the month, e.g., March's data would be due by April 10, or 15.

14. Metrics #7: A concern was raised about combining electronic distribution and non-electronic distribution, e.g., mail, into a single metric. It was recommended that the 2 distribution modes be collected separately. Paul will look into this.

15. New Activity: Mike Goodman asked that his REASoN project – DISCOVER – be added to the web form. Paul will add to the project list on the front of the Web tool.

Phase 2 Items

1. Manual vs. Automatic Data Entry: This was recommended for Phase 2 discussion.

2. Media Distribution: A question was raised about how we should characterize metrics for mass production and distribution of media (e.g., CD-ROMs).

3. Specification Control: Frank Lindsay recommended that the WG develop the necessary documentation – Interface Requirements Document (IRD) and Interface Control Document (ICD) – to formalize and control the tool's requirements and interface specifications, especially if the WG moves into automated data entry. This was acknowledged by the WG as necessary and will be addressed in the future.

4. Visual Graphics: The comment was about visual graphics at either the entry form or as a product of the tools' database. It was agreed that this will be discussed as a future item.

5. Revised Data Level Definitions: Chris Kummerow proposed adding new data / product levels to the current Level 0 – 3 standard definition set. The new levels would

help in measuring higher level products that typically are value added and are at reduced volumes. Chris' proposal was distributed to the WG for further discussion.

Summary

1. Consensus of the WG was that with the proper fixes mentioned above the University of Maryland metrics collection tool is a very good start and should be implemented.

2. Rama discussed several short turnaround events: 1) Comments on minutes due by c.o.b Friday April 2, 2) Draft recommendations, decide what gets implemented in Phase 1, and send a decision memo to NASA Hq within 10 days.

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Final Minutes
Earth Science MPAR WG, Orlando, FL, 1/8/2004

March 17, 2004

[The minutes reflect comments received from MPAR WG participants during the comment period.]

Notes from Earth Science WG Kick-Off Meeting – January 8, 2004, Orlando, FL
MPAR Working Group Beak-out Session.
Dr H. K. (Rama) Ramapriyan, NASA, GSFC, Chair.

1. Introductions

Excluding principals and support staff, 19 attendees could be classified as MPAR WG participants with a good cross section of DAAC, REASON, Federation and SIPS representation.

Action (Booth): Produce attendee list.
Completed 1/9/2004

2. Adopt MPAR WG Charter

Rama read through the draft charter. With some minor editing, the consensus of the WG was that the draft should be adopted. Rama decided to leave the comment period open for 2 weeks – January 22.

Action (Booth): Revise current draft with WG edits; distribute to attendee list for comments due January 22. [The comments will be due February 10, 2004 along with comments on these draft minutes.]

Charter updated and final version placed on MPAR WG web site.

Revising the Charter – The WG agreed that the Chair/Co-Chair are the stewards of the charter. Any proposed changes to the charter should be sent to the Chairs for consideration. This will be reflected in the revised draft.

3. Relationship between Federation Metrics group and MPAR WG

The WG noted significant commonality between the two groups and that joint participation in future meetings was important and beneficial to advancing NASA metrics collection and reporting. The Federation stated it would participate in providing metrics to the MPAR WG.

It was noted that the Federation is now focusing on success stories as a means of documenting impact metrics. This is being done largely through their "nugget" anecdotal metrics' collection. However, the Federation is still collecting "production" metrics.

Since there is no "SEEDS Program Office," questions were asked about the organization structure that will collect the metrics for aggregation and reporting. It was noted that Kathy Fontaine is responsible for the Earth Science Working Groups' effort with MPAR WG led by Rama and supported by various contractor staff, as required. There was some discussion about the role of the REASoN Study Managers and the need for clarification.

(Note: Reference to SEEDS Program Office in the draft charter was changed to read ESE (Earth Science Enterprise)).

A question came up about how NASA will use the collected information, and the WG needs to be sensitive to metrics used by OMB for performance measurement. Rama stated that the metrics will not be used for site inter-comparison, and will be aggregated at a fairly high level to show overall data and/or services performance support and success stories for the ESE.

4. Elect Co-Chair

Paul Davis, GLCF Project Manager, University of Maryland, agreed to be the MPAR WG Co-Chair. He was unanimously elected by the attendees. The term will be one year.

5. MPAR Working Group Membership – who else should join?

The WG suggested additional agencies, project, and individuals for membership: Census, Aura Mission, Digital Library, NASA HQ (e.g., Applications Program Manager), NOAA, DAAC User Services, etc. This raised the possibility of inviting both new members into the WG and individuals that could present metrics-related information to the WG, such as NASA Legal and the President's Management Agenda.

Action: (All) Provide Chairs will suggested points-of-contact for possible membership to the WG or for possible invitees to present metrics-related information. This action will be left open and names and contact information will be gathered from members on an on-going basis.

6. Adopt Rules of Operation

The WG reviewed three slides of draft Rules of Operation. There was consensus agreement on the proposed Rules of Operation. The following points were raised by the WG:

a. The recommendation review process should include other Earth Science WGs.
b. Kathy noted the importance of the process by stating that approved recommendations will likely show up in future NASA solicitations (CANs, NRAs, etc.)

c. Depending on the scale and/or scope of a recommendation, the Chairs will determine if the recommendation requires a "shepherd" and the full set of review/justification steps, or if it can simply be adopted by acclamation.
d. The WG recommended that six start-up subgroups be organized: Research, Applications, Education, Voting, Governance, and Unique Methods of Measuring Metrics (to more accurately reflect progress).
e. The WG recommended two meetings per year, and the following preferred WG communications: e-mail, telecons, web-site space, groupware, and as needed face-to-face meetings. Consensus was to use e-mail. It was also recommended that the WG meetings be collocated with Federation meetings to facilitate interaction between the two groups.

Action (Booth): Per WG comments, revise Rules of Operation and post on MPAR WG web site.

Revised Rules of Operation included in MPAR WG Introduction to Plenary Session (FINAL) Powerpoint file.

7. Discuss Metric's Table

The WG discussed an initial baseline set of metrics -- the 10 metrics used by NASA HQ for REASoN contracts. There was considerable discussion about the metrics and their acceptance and definition will be a priority item for the WG. More discussion and agreement is required. Some WG comments are listed below.

a. The metrics are too DAAC-centric (agreed by all).
b. Metric definitions are viewed differently and are defined differently based on their discipline source, e.g., science, applications, education, operations. (This led to the WG recommending establishment of 3 subgroups – science, applications, and education -- to consider this uniqueness issue. Also, the connection was made to metrics 8, 9, and 10.)
c. More human impact and socio-economic metrics need to be defined and implemented. We need to go beyond just collecting "bits and bytes." (This led to the WG recommending establishment of the Unique Methods of Measuring Metrics Subgroup.)
d. There are numerous lessons learned in the community on metrics collection; it was recommended that the WG look at EDGRS' metric definitions.
e. Metrics validation was raised as an important requirement for any metric collection process.
f. "Services" need to be included in the metrics list.

Action (All): Revise baseline metrics table, staff through WG for comments and recommendations per Rules of Operation.

8. Present candidate tools for metrics collection

Two tools were briefed: University of Maryland's Federation Tool, and EDGRS.

9. Discuss tools – get consensus on message to all REASoN PI's

TBD

10. Identify and prioritize work of the group

It was clear that this item was defined by the action items noted above and the FY2004 work plan below. In brief, the work of the group is to define and implement Earth Science Enterprise program metrics and one or more collection tools by June 2004 for initial testing.

11. Discuss FY2004 work plan

Rama discussed the WG's work plan for the remainder of FY2004. There was consensus regarding this plan.

Note: Work Plan is included in MPAR WG Introduction to Plenary Session Powerpoint (FINAL) file.

12. Review summary of meeting to present to plenary

The WG completed a fill-in form that was used to expedite the plenary report-out process.

Reference to all documentation mentioned in this report will be made available to the WG members individually for review and comment, or on the Earth Science MPAR WG web site (http://eos.nasa.gov/seeds or http://lennier.gsfc.nasa.gov/seeds/WG/MPAR/index.html)

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